In This Section

- Assessment of Water Quantity
- Assessment of Water Quality

Section 5

Assessments of Water Quantity and Quality

This section provides an evaluation of the current conditions in the Tallapoosa River basin, in terms of both water quantity (Section 5.1) and water quality (Section 5.2) issues. The assessment results are combined with the evaluation of environmental stressors from Section 4 to produce a listing of Concerns and Priority Issues in Section 6.

5.1 Assessment of Water Quantity

Water quantity issues in the Tallapoosa River basin are being addressed comprehensively as part of the ACT/ACF study. In that process an Interstate Compact has been established to administer a water allocation formula which will partition the flow of the Tallapoosa River between Alabama and Georgia. The following sections provide a summary of preliminary findings from this study.

5.1.1 Municipal and Industrial Water Uses

As noted in Section 3.2, Municipal and Industrial (M&I) water demands in the Tallapoosa River basin are expected to increase by about 50 percent between 1995 and 2020, virtually all from surface water sources. The existing water resources in the Tallapoosa and Little Tallapoosa rivers in west Georgia will not be sufficient to meet projected demands for municipal and industrial supplies during drought conditions. Because of this expected shortfall, the West Georgia Water Authority proposes to construct the West Georgia Regional Reservoir on the Tallapoosa River in Haralson County approximately 6 miles upstream of the Alabama state line. (See Section 2). The reservoir would provide water to for Haralson, Carroll, and Paulding counties. The Authority is prepared to submit the necessary documents to support a Section 404 permit application upon completion of the ACT water allocation agreement. At that point the Corps of Engineers would evaluate the application, including potential and expected environmental impacts. It is expected that construction of the reservoir would provide a reliable water supply to the region for the foreseeable future.

Drinking Water Quality: Surface Water

Overall the surface water quality in the Tallapoosa River Basin is good for use as drinking water. All public water systems in the state of Georgia that use surface water meet the federal Surface Water Treatment Rules for filtration and treatment. However, surface water quality problems due to nonpoint source pollution such as agricultural and storm water runoff are concerns to municipalities that withdraw surface water from the Tallapoosa River and tributaries. The contaminant of most concern is high turbidity, especially rapid increases in turbidity due to erosion and sediment runoff. Water high in turbidity can clog filters, interrupt the proper treatment of raw water, and increase the cost of the water to the consumers because more chemicals must be applied to settle out the sediment. Table 5-1 summarizes the known and potential water quality problems affecting drinking water supplies associated with surface water intakes within the Tallapoosa basin.

Drinking Water Quality: Ground Water

Overall the ground water quality from wells is very good for use as drinking water. Since most wells used in public water systems are constructed by licensed well drillers and draw from deep aquifers, the number of contaminated wells is small. If a well exceeds the Maximum Contaminant Level (MCL) for a contaminant, it is removed from service or additional treatment is added to the system.

5.1.2 Agriculture

The water demand for agricultural use in the Tallapoosa basin is, and will remain for the foreseeable future, a small portion of the total demand. Whether taken from surface or ground water sources, there is no reason to believe that the supply will not be adequate, even during a drought year.

5.1.3 Recreation

Recreational use of surface waters in the Tallapoosa basin is limited to local fishing and boating on the rivers and farm ponds. There should be no concern about sufficiency of water availability for this purpose. There is potential for development of significant lake recreation activity on the West Georgia Regional Reservoir should construction be approved, however.

5.1.4 Hydropower

There is no hydropower production within the Georgia portion of the Tallapoosa basin.

5.1.5 Navigation

The Georgia portion of the Tallapoosa basin is not used for commercial navigation.

Table 5-I. Known and Potential Raw Water Quality Problems Affecting Drinking Water Supplies in the Tallapoosa Basin

Water System Name	Water Source Name	Number of Intakes	Reservoir in Use?	Number of Water Plants	Known Raw Water Quality Problems in the Past and Potential Future Problems	Other Comments
Bowdon	Turkey Creek	1	Y	1	Emergency intake only. Source is shallow and prone to rapid increases in turbidity.	Water System in compliance. Overall in good condition.
	Tisinger Reservoir	1			Primary source. Potential pollution concerns with pasture and agricultural land upstream and recreation allowed on lake.	
Carrollton	Little Tallapoosa River	1	N	1	Intake impacted by urban development runoff from communities up stream. Source has two reservoirs upstream to maintain water levels, but iron and manganese problems occur in wetlands between the reservoirs.	Water System in compliance. Overall in good condition.
Temple	Webster Creek	1	Y	1	Potential pollution concerns with pasture and agricultural land upstream. Also potential development upstream.	Water System in compliance. Overall in good condition.
Villa Rica	Lake Paradise	1	N	1	Intake located in headwaters of Little Tallapoosa. Shallow area of river prone to drought problems and taste and odor problems. Potential pollution concerns about development upstream.	Water System in compliance. Overall in good condition. City needs to work with private owner of Cowans Lake to determine future land use and BMP that could be put into place to prevent future degradation of water.
	Cowans Lake	1	N	1	Secondary intake that pumps to Lake Paradise for drought control. Private lake that is not owned by the city. Pasture land around the lake and some taste and odor problems due to wetland area. Concerns regarding potential residential development around the lake.	

Water System Name	Water Source Name	Number of Intakes	Reservoir in Use?	Number of Water Plants	Known Raw Water Quality Problems in the Past and Potential Future Problems	Other Comments
Bremen	Beech Creek Tributary	1	N	1	Primary intake. Urban development upstream has increased erosion and sedimentation problems including rapid turbidity increases and taste and odor problems. Erosion and sedimentation problems possibly due to lack of enforcement of code.	Water System in compliance. Overall in good condition. City and county needs to implement erosion and sedimentation codes in order to prevent future degradation of water. Also city and county need to work with owners of land around Bush Creek reservoir to implement forestry BMPs when timber is harvested.
	Bush Creek Reservoir	1	Y	1	Inactive intake. Water in reservoir is allocated for low flow use by Haralson county. Watershed is a forested area with virgin timber. Potential pollution concerns are erosion and sedimentation if the timber is harvested or if the watershed is developed.	
Haralson County Water Authority	Tallapoosa River	1	N	1	Urban development upstream has increased erosion and sedimentation problems including rapid turbidity increases. Occasionally the Authority experiences problems due to clogging of intake by leaves. Potential pollution concerns regarding transportation corridors Hwy 27 and 120 corridor. Intake has past problems with drought.	Water System in compliance. Overall in good condition. Due to drought problems in the area, county has spearheaded study for a potential larger reservoir on the Tallapoosa River.

5.1.6 Waste Assimilation Capacity

Sufficient flow for assimilation of treated wastewater in the Tallapoosa basin is not assured in a drought without construction of the West Georgia Regional Reservoir. Georgia has obligations under the Clean Water Act to meet instream water quality standards, and the state places a high priority on this obligation (See Section 6.0). Only under extreme drought conditions, when sufficient water flow is not available after domestic water supply needs are met, might there be insufficient water to meet instream water quality standards.

5.1.7 Assessment of Ground Water

There is only a very limited extent of ground water use in the Tallapoosa basin in Georgia. This upper basin resides on Piedmont geology (hard metamorphic rock), with groundwater found only in the overlying saprolite and in cracks and fractures in that rock. Ground water does not seem to be an issue in this area, since no municipal nor industrial permits have been granted in this Georgia portion of the basin, and agricultural irrigation use of ground water is quite minimal.

5.2 Assessment of Water Quality

This assessment of water quality generally reflects Georgia's water quality assessments for reporting to EPA under Section 305(b) of the Clean Water Act. It begins with a discussion of (1) water quality standards, (2) monitoring programs, and (3) data analyses to assess compliance with water quality standards and determine use support. Following this introductory material, detailed assessment results by subbasin are presented in Section 5.2.4.

5.2.1 Water Quality Standards

Assessment of water quality requires a baseline for comparison. A statewide baseline is provided by Georgia's water quality standards, which contain water use classifications, numeric standards for chemical concentrations, and narrative requirements for water quality.

Georgia's water use classifications and standards were first established by the Georgia Water Quality Control Board in 1966. The water use classification system was applied to interstate waters in 1972 by EPD. Table 5-2 provides a summary of water use classifications and basic water quality criteria for each water use. Georgia also has general narrative water quality standards, which apply to all waters. These narrative standards are summarized in Table 5-3.

In addition to the basic water quality standards shown above, Congress made changes in the Clean Water Act in 1987 which required each state to adopt numeric limits for toxic substances for the protection of aquatic life and human health. To comply with these requirements, in 1989 the Board of Natural Resources adopted 31 numeric standards for the protection of aquatic life and 90 numeric standards for the protection of human health. Appendix B provides a complete list of the toxic substance standards that apply to all waters in Georgia. Georgia has adopted all numeric standards for toxic substances promulgated by the US EPA. Georgia is also developing site-specific standards for major lakes where control of nutrient loading is required to prevent problems associated with eutrophication. There are no major lakes within the Georgia portion of the Tallapoosa basin.

Table 5-2. Georgia Water Use Classifications and Instream Water Quality Standards for Each Use

	Bacteria (fecal coliform)		Dissolved Oxygen (other than trout streams)[1]		pH	Temperature (other than trout streams)[1]	
Use Classification	30-Day Geometric Mean[2] (MPN/100 ml)	Maximum (MPN./100 ml)	Daily Average (mg/l)	Minimum (mg/l)	Std. Units	Maximum Rise (°F)	Maximum (°F)
Drinking Water requiring treatment	1,000 (Nov-April) 200 (May-October)	4,000 (Nov-April)	5.0	4.0	6.0-8.5	5	90
Recreation	200 (Freshwater) 100 Coastal)	--	5.0	4.0	6.0-8.5	5	90
Fishing Coastal Fishing[3]	1,000 (Nov-April) 200 (May-October)	4,000 (Nov-April)	5.0	4.0	6.0-8.5	5	90
Wild River	No alteration of natural water quality						
Scenic River	No alteration of natural water quality						

[1] *Standards for Trout Streams for dissolved oxygen are an average of 6.0 mg/l and a minimum of 5.0 mg/l. No temperature alteration is allowed in Primary Trout Streams and a temperature change of 2 °F is allowed in Secondary Trout Streams.*

[2] *Geometric means should be "based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours." The geometric mean of a series of N terms is the Nth root of their product. Example: the geometric mean of 2 and 18 is the square root of 36.*

[3] *Standards are same as fishing with the exception of dissolved oxygen which is site specific.*

Table 5-3. Georgia Narrative Water Quality Standards for All Waters
(Excerpt from Georgia Rules and Regulations for Water Quality Control Chapter 391-3-6-.03 - Water Use Classifications and Water Quality Standards)

(5) General Criteria for All Waters. The following criteria are deemed to be necessary and applicable to all waters of the State:

(a) All waters shall be free from materials associated with municipal or domestic sewage, industrial waste or any other waste which will settle to form sludge deposits that become putrescent, unsightly or otherwise objectionable.

(b) All waters shall be free from oil, scum and floating debris associated with municipal or domestic sewage, industrial waste or other discharges in amounts sufficient to be unsightly or to interfere with legitimate water uses.

(c) All waters shall be free from material related to municipal, industrial or other discharges which produce turbidity, color, odor or other objectionable conditions which interfere with legitimate water uses.

(d) All waters shall be free from toxic, corrosive, acidic and caustic substances discharged from municipalities, industries or other sources, such as nonpoint sources, in amounts, concentrations or combinations which are harmful to humans, animals or aquatic life.

(e) All waters shall be free from turbidity which results in a substantial visual contrast in a waterbody due to man-made activity. The upstream appearance of a body of water shall be observed at a point immediately upstream of a turbidity-causing man-made activity. The upstream appearance shall be compared to a point which is located sufficiently downstream from the activity so as to provide an appropriate mixing zone. For land disturbing activities, proper design, installation and maintenance of best management practices and compliance with issued permits shall constitute compliance with [this] Paragraph...

5.2.2 Surface Water Quality Monitoring

EPD's monitoring program integrates physical, chemical, and biological monitoring to provide information for water quality and use attainment assessments and for basin planning. EPD monitors the surface waters of the state to:

- collect baseline and trend data,

- document existing conditions,
- study impacts of specific discharges,
- determine improvements resulting from upgraded water pollution control plants,
- support enforcement actions,
- establish wasteload allocations for new and existing facilities,
- verify water pollution control plant compliance,
- document water use impairment and reasons for problems causing less than full support of designated water uses, and
- develop Total Maximum Daily Loads.

EPD uses a variety of monitoring tools to collect information to determine if the waterbodies are supporting its designated uses. These tools include trend monitoring, intensive surveys, lake, coastal, biological, fish tissue, and toxic substance monitoring, and facility compliance sampling. Each of these is briefly described in the following sections.

Continuous Trend Monitoring

During the late 1960s EPD initiated long-term monitoring of streams at strategic locations throughout Georgia called trend or ambient monitoring. This work is primarily accomplished through cooperative agreements with federal, state, and local agencies who collect samples from groups of stations at specific, fixed locations throughout the year. The cooperating agencies conduct certain tests in the field and send stream samples to EPD for additional laboratory analyses. Although there have been a number of changes over the years, routine chemical trend monitoring is still accomplished through similar cooperative agreements.

Today EPD contracts with the United States Geological Survey (USGS) for the majority of the trend sampling work. EPD associates also collect water and sediment samples for toxic substance analyses, as well as macroinvertebrate samples to characterize the biological community at selected locations as a part of the trend monitoring effort. Additional samples used in the 1996-97 Assessment were collected by other federal, state, and local governments, and universities. Trend monitoring stations located in the Tallapoosa basin in 1994 are shown in Figure 5-1.

Focused Trend Monitoring in the Tallapoosa River Basin

In 1995, EPD adopted and implemented significant changes to the strategy for trend monitoring in Georgia. The changes were implemented to support the River Basin Management Planning program. The number of fixed stations statewide was reduced in order to focus resources for sampling and analysis in a particular group of basins in any one year in accordance with the basin planning schedule. Sampling focus was placed on the Tallapoosa, Coosa, and Oconee basins during 1996 sampling.

Figure 5-2 shows the focused trend monitoring network for the Tallapoosa basin used in 1996. During this period statewide trend monitoring was continued at the thirty seven core station locations statewide, in the Savannah Harbor, in the Chattahoochee at Atlanta and Columbus, and at continuous monitoring locations. The remainder of the trend monitoring resources were devoted to the Tallapoosa, Coosa, and Oconee basins. As a result, more sampling was conducted in the focus river basins. Increasing the resolution of the water quality monitoring improves the opportunity to identify impaired waters, as well as the causes of impairment.

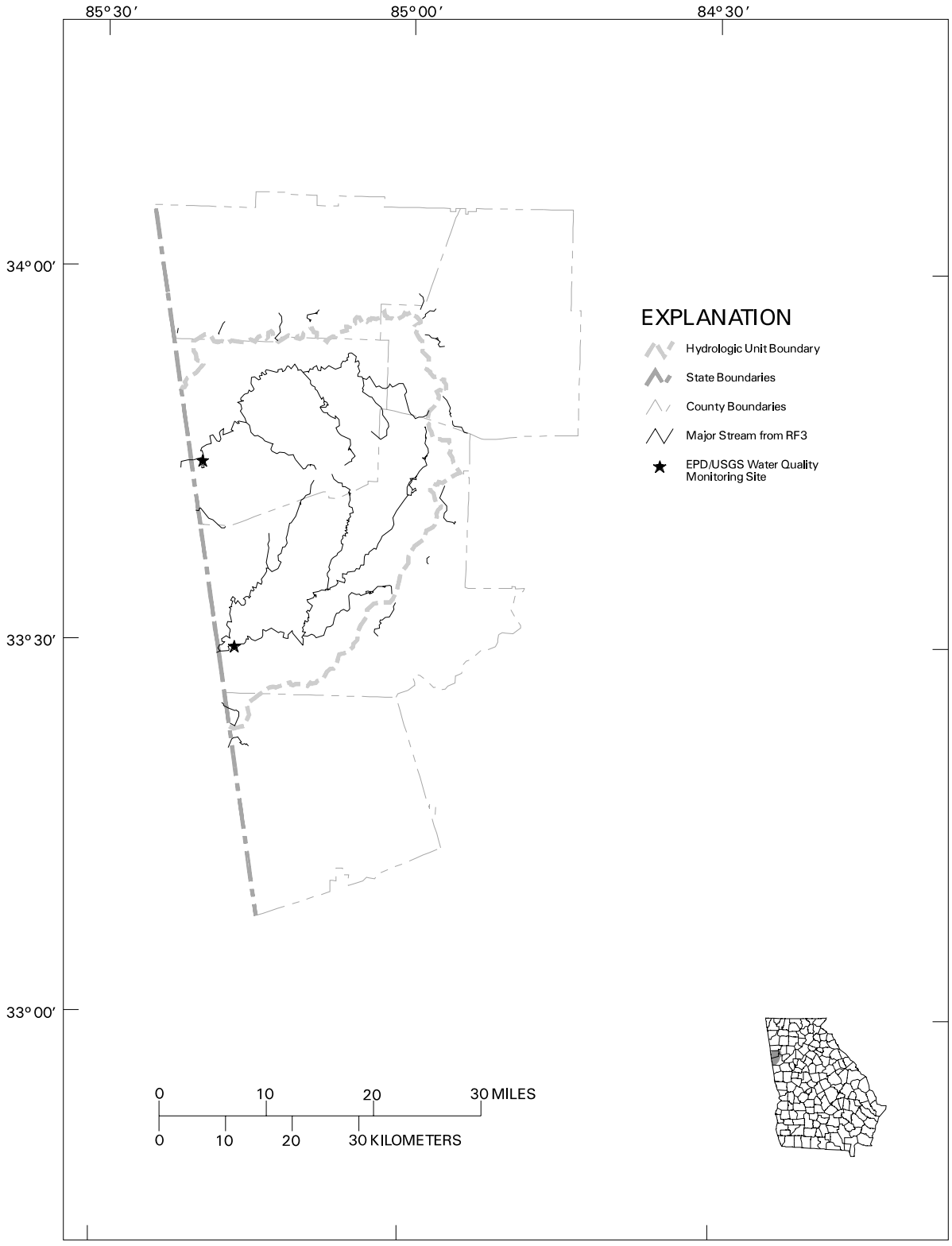

Figure 5-I. Tallapoosa Basin Fixed Sampling Station Locations

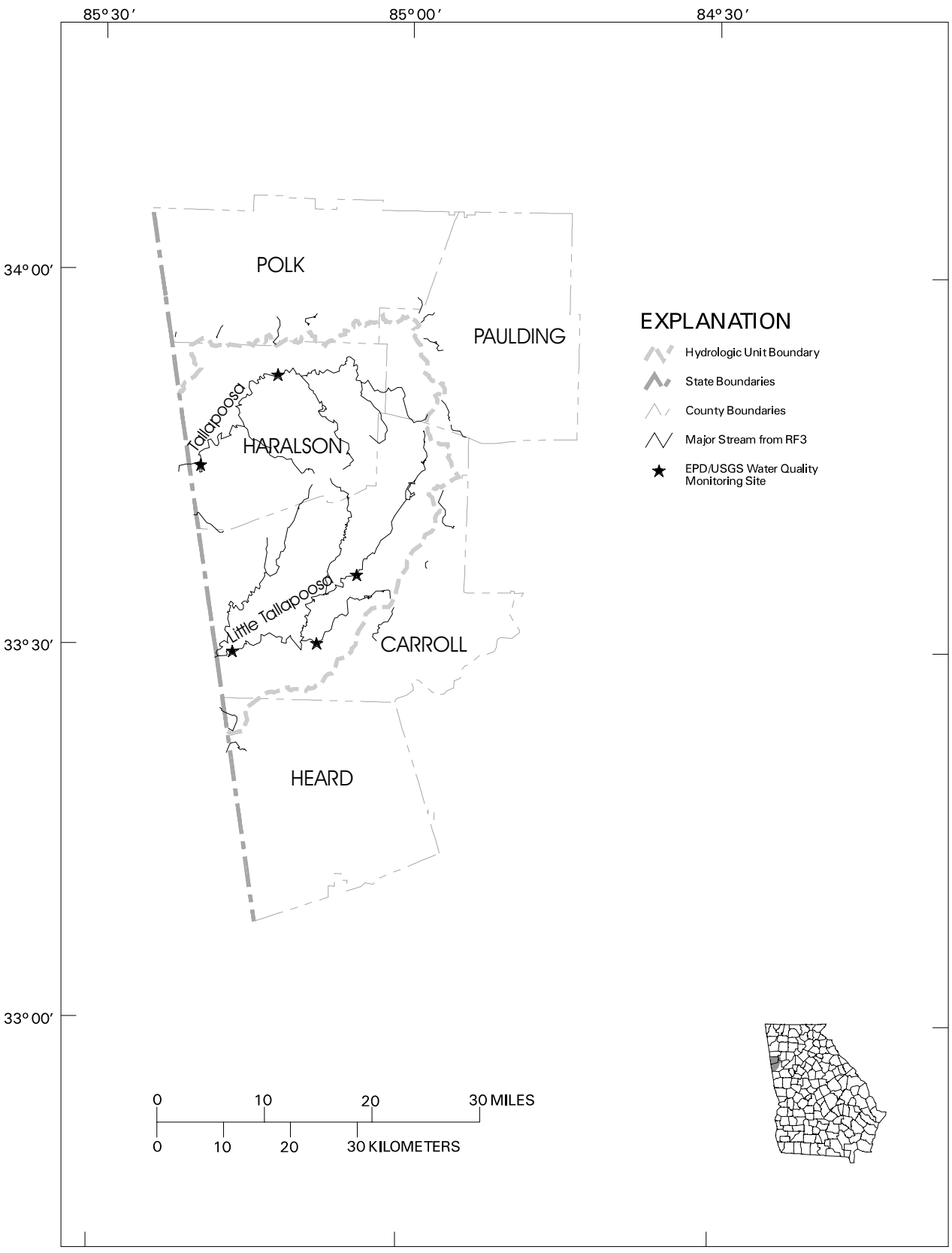

Figure 5-2. Tallapoosa Basin Trend Monitoring Network Station Locations, 1996

Intensive Surveys

Intensive surveys complement long term fixed station monitoring to focus on a particular issue or problem over a shorter period of time. Several basic types of intensive surveys are conducted, including model calibration surveys and impact studies. The purpose of a model calibration survey is to collect data to calibrate a mathematical water quality model. Models are used for wasteload allocations and/or TMDLs and as tools for use in making regulatory decisions. Impact studies are conducted where information on the cause-and-effect relationships between pollutant sources and receiving waters is needed. In many cases biological information is collected along with chemical data for use in assessing environmental impacts.

Fish Tissue Monitoring

The DNR conducts fish tissue monitoring for toxic chemicals and issues fish consumption guidelines as needed to protect human health. It is not possible for the DNR to sample fish from every stream and lake in the state. However, high priority has been placed on the 26 major reservoirs which make up more than 90 percent of the total lake acreage. These lakes will continue to be sampled as part of the River Basin Management Planning 5-year rotating schedule to track trends in fish contaminant levels. The DNR has also made sampling fish in rivers and streams downstream of urban and/or industrial areas a high priority. In addition, DNR will focus attention on areas frequented by a large number of anglers.

The program includes testing of fish tissue samples for the substances listed in Table 5-4. Of the 43 constituents tested, only PCBs, chlordane, and mercury have been found in fish at concentrations that could create risk to human health from fish consumption.

The test results have been used to develop consumption guidelines which are updated annually and provided to fishermen when they purchase fishing licenses. This program will continue and will be coordinated as a part of the River Basin Management Planning process in the future.

Table 5-4. Parameters for Fish Tissue Testing

Antimony	a-BHC	Heptachlor
Arsenic	b-BHC	Heptachlor Epoxide
Beryllium	d-BHC	Toxaphene
Cadmium	g-BHC (Lindane)	PCB-1016
Chromium, Total	Chlordane	PCB-1221
Copper	4,4-DDD	PCB-1232
Lead	4,4-DDE	PCB-1242
Mercury	4,4-DDT	PCB-1248
Nickel	Dieldrin	PCB-1254
Selenium	Endosulfan I	PCB-1260
Silver	Endosulfan II	Methoxychlor
Thallium	Endosulfan Sulfate	HCB
Zinc	Endrin	Mirex
Aldrin	Endrin Aldehyde	Pentachloroanisole
		Chlorpyrifos

Toxic Substance Stream Monitoring

EPD has focused resources on the management and control of toxic substances in the state's waters for many years. Toxic substance analyses have been conducted on samples from selected trend monitoring stations since 1973. Wherever discharges were found to have toxic impacts or to include toxic pollutants, EPD has incorporated specific limitations on toxic pollutants in NPDES discharge permits.

In 1983 EPD intensified toxic substance stream monitoring efforts. This expanded toxic substance stream monitoring project includes facility effluent, stream, sediment, and fish sampling at specific sites downstream of selected industrial and municipal discharges. From 1983 through 1991, 10 to 20 sites per year were sampled as part of this project. During recent years, this effort was reduced significantly due to use of limited laboratory resources for different types of analysis. Future work will be conducted as a part of the River Basin Management Planning process.

Facility Compliance Sampling

In addition to surface water quality monitoring, EPD conducts evaluations and compliance sampling inspections of municipal and industrial water pollution control plants. Compliance sampling inspections include the collection of 24-hour composite samples, as well as an evaluation of the permittee's sampling and flow monitoring requirements.

More than 270 sampling inspections were conducted by EPD staff statewide in 1996-1997. The results were used, in part, to verify the validity of permittee self-monitoring data and as supporting evidence, as applicable, in enforcement actions. Also, sampling inspections can lead to identification of illegal discharges. In 1996, this work was focused on facilities in the Tallapoosa, Coosa, and Oconee River Basins in support of the basin planning process.

Aquatic Toxicity Testing

In 1982 EPD incorporated aquatic toxicity testing into selected industrial NPDES permits. In January 1995, EPD issued approved NPDES Reasonable Potential Procedures, which further delineated required conditions for conducting whole effluent toxicity (WET) testing for municipal and industrial discharges. All major permitted dischargers (flow greater than 1 MGD) are required to have WET tests run with each permit reissuance. Certain minor dischargers are also subject to this requirement if EPD determines that aquatic toxicity is a potential issue.

5.2.3 Data Analysis

Assessment of Use Support

EPA assesses water quality data to determine if water quality standards are met and if the waterbody supports its classified use. If monitoring data shows that standards are not achieved, depending on the frequency with which standards are not met, the waterbody is said to be not supporting or partially supporting the designated use (see box).

Appendix E includes lists of all streams and rivers in the basin for which data have been assessed. The lists include information on the location, data source, designated water use classification, criterion violated, potential cause, actions planned to alleviate the problem, and estimates of stream miles affected. The lists are further coded to indicate status of each waterbody under several sections of the Federal Clean Water Act (CWA). Different sections of the CWA require states to assess water quality (Section

Analysis of data for fecal coliform bacteria, metals, toxicity, dissolved oxygen, fish/shellfish consumption advisories, and biotic data

Fecal Coliform Bacteria

Georgia water quality standards establish a fecal coliform criterion of a geometric mean (four samples collected over a 30 day period) of 200 MPN/100 mL for all waters in Georgia during the recreational season of May through October. This is the year-round standard for waters with the water use classification of recreation. Although the standard is based on a geometric mean, most of the data for Georgia and other states is based on once per month sampling as resources are not available to conduct sampling and analysis four times per month. Thus, for the purposes of this report US EPA recommends the use of a review criterion of 400 MPN/100 mL to evaluate once per month sample results. This density, 400 MPN/100 mL, was used to evaluate data for the months from May through October for all waters. For waters with the water use classification of recreation, this guidance criterion was used to evaluate data for the entire year. For waters classified as drinking water, fishing, or coastal fishing, the maximum Georgia standard for fecal coliform bacteria is 4000 MPN/100 mL (November through April). This standard was used to evaluate data collected during November through April for these waters. Waters were deemed not supporting uses when 25 percent of the samples had fecal coliform bacteria densities greater than the applicable review criteria (400 or 4000 MPN/100 mL) and partially supporting when 11 percent to 25 percent of the samples were in excess of the review criterion.

Metals

Since data on metals from any one given site are typically infrequent, using the general evaluation technique of 25 percent excursion to indicate nonsupport and 11 percent to 25 percent excursion to indicate partial support was not meaningful. Streams were placed in the nonsupporting category if multiple excursions of state criteria occurred and the data were based on more than four samples per year. With less frequent sampling, streams with excursions were placed on the partially supporting list. In addition, an asterisk appears beside metals data in those cases where there is a minimal database. A number of stream segments were listed based on one data point's exceeding a water quality standard. This approach is in accordance with US EPA guidance, which suggests any single excursion of a metals criterion be listed.

Toxicity Testing/Toxic Substances

Data from EPD toxicity testing of water pollution control plant effluents were used to demonstrate or predict toxicity in the receiving waterbody. Based on the effluent toxicity, receiving waters were considered as not supporting when one or more tests gave a clear indication of instream toxicity and as partially supporting when based on predicted instream toxicity. Effluent data for toxic substances were used to designate either partial support or nonsupport based on whether instream corroborating data were available. When instream data were available, the stream was determined to be not supporting; when instream data were not available, the stream was listed as partially supporting.

Dissolved Oxygen, pH, Temperature

When available data indicated that these parameters were out of compliance with state standards more than 25 percent of the time, the waters were evaluated as not supporting the designated use. Between 11 percent and 25 percent noncompliance resulted in a partially supporting evaluation.

Fish/Shellfish Consumption Guidelines

A waterbody was included in the not supporting category when an advisory for "no consumption" of fish, a commercial fishing ban, or a shellfishing ban was in effect. Waterbodies were placed in the partially supporting category if a guideline for restricted consumption of fish had been issued for the waters.

Biotic Data

A "Biota Impacted" designation for "Criterion Violated" indicates that studies showed a modification of the biotic community. Communities used were fish. Studies of fish populations by the DNR Wildlife Resources Division used the Index of Biotic Integrity (IBI) to identify affected fish populations. The IBI values were used to classify the population as Excellent, Good, Fair, Poor, or Very Poor. Stream segments with fish populations rated as "Poor" or "Very Poor" were included in the partially supporting list.

305(b)), to list waters still requiring TMDLs (Section 303(d)), and to document waters with nonpoint source problems (Section 319).

The assessed waters are described in three categories—waters supporting designated uses, waters partially supporting designated uses, and waters not supporting designated uses. Waters were placed on the partially supporting list for at least one of the following reasons:

- The chemical data (dissolved oxygen, pH, temperature) indicated an excursion of a water quality standard in 11 percent to 25 percent of the samples collected.
- A fish consumption guideline was in place for the waterbody.

The partially supporting list also includes stream reaches based on predicted concentrations of metals at low stream flow (7Q10 flows) in excess of state standards as opposed to actual measurements on a stream sample. Generally, a stream reach was placed on the not supporting list for at least one of the following reasons:

- The chemical data (dissolved oxygen, pH, temperature) indicated an excursion of a water quality standard in greater than 25 percent of the samples collected.
- A fish consumption ban was in place for the waterbody.
- Acute or chronic toxicity tests documented or predicted toxicity at low stream flow (7Q10) due to a municipal or industrial discharge to the waterbody.

5.2.4 Assessment of Water Quality and Use Support

This section provides a summary of the assessment of water quality and support of designated uses for streams and major lakes in the Tallapoosa River basin. Most of these results were previously summarized in the report *Water Quality in Georgia, 1996-1997* (Georgia DNR, 1998). A geographic summary of assessment results is provided by HUC in Figure 5-3.

Tallapoosa River Basin (Hydrologic Unit Code 03150108)

Appendix E, Table E-1 summarizes the determination of support for designated uses of all assessed rivers and streams within this hydrologic unit (GA DNR, 1998).

Monitoring data were collected from 5 trend monitoring stations located within this subbasin during the 1996 period, two of which were on the Tallapoosa River mainstem and two of which are on the Little Tallapoosa River mainstem. Historically, two trend monitoring stations have been sampled within this basin. The following assessment is based on data from these trend monitoring stations as well as data from EPD special studies (e.g., intensive surveys) and samples collected by other agencies.

Data from the mainstem stations indicate that water quality conditions are being affected primarily by nonpoint source pollution.

Metals

Lead standards were exceeded in the Tallapoosa River mainstem due to nonpoint sources. Lead, copper, cadmium, nickel, zinc and selenium were exceeded in tributary segments due primarily to nonpoint sources and historic sediment contamination associated with the Southwire industrial site. Southwire has two manufacturing facilities, one on each bank of Buffalo Creek. The Copper Division operates a smelter and electrolytic refining process. It now has a contaminated storm water capture and treatment system which supplies the contact cooling water needs. The excess water is treated and discharge to a Buffalo Creek tributary under an NPDES permit. The Southwire Wire Plant takes the copper from the Copper Division and manufactures a

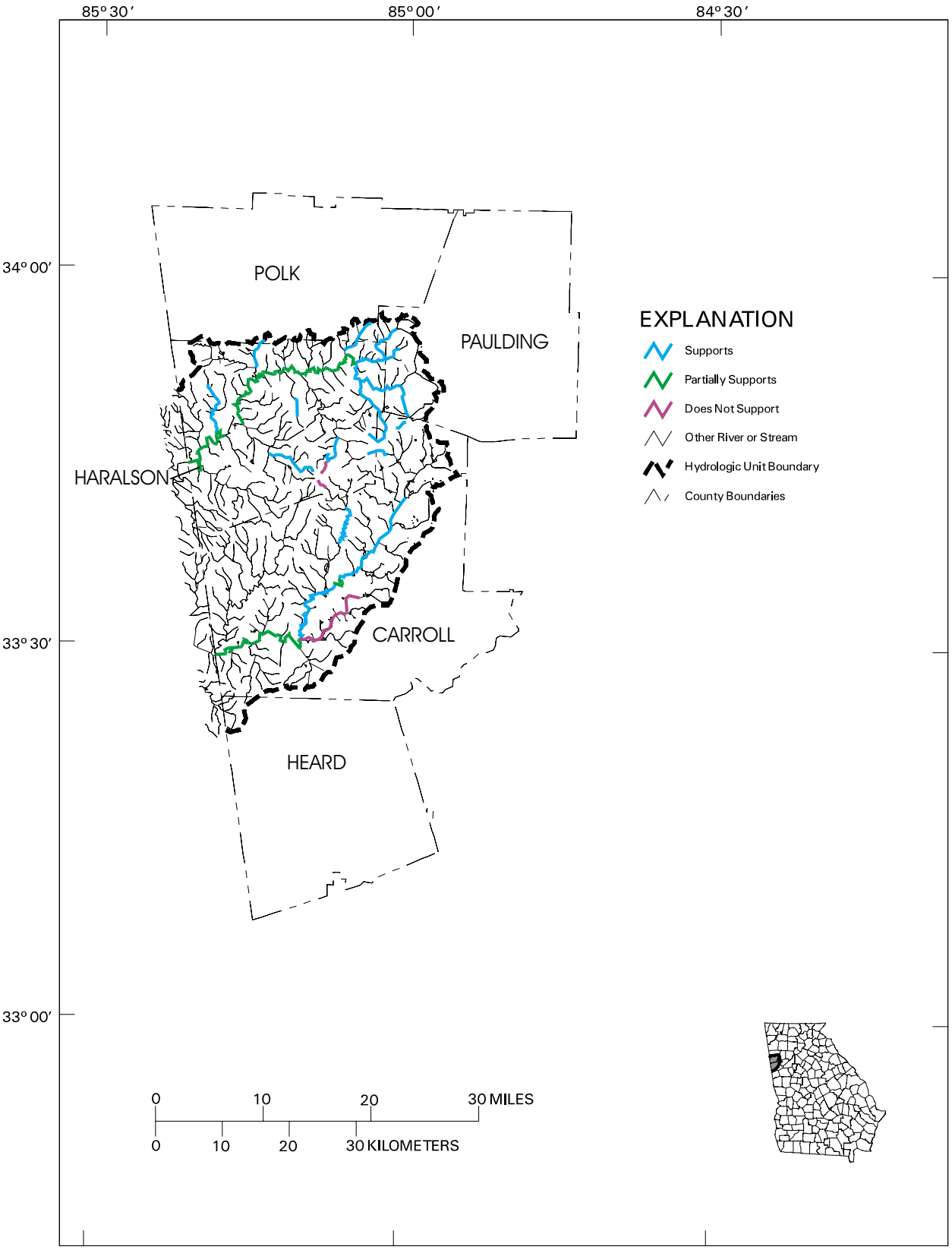

Figure 5-3. Assessment of Water Quality Use Support in the Tallapoosa River Basin, HUC 03150108

variety of wire products. The process wastewater is now recycled as contact cooling water. The excess is pretreated and discharged to the Carrollton sewer system. Storm water drains from the dozens of acres of roofs are connected to the internal process sewer system, which has overflows to Buffalo Creek. These are essentially industrial combined sewer overflows and are limited and monitored under an NPDES permit. These Southwire facilities are net consumers of water; they collect storm water on-site for plant uses and discharge lesser amounts to the streams. Discharges from these two NPDES permitted point sources contribute only a small quantity of metals loading to Buffalo Creek. It is unclear, at this point, how metals concentrations in excess of water quality standards translate into actual risk to or impairment of aquatic life. Initial tests on waters from Buffalo Creek indicate that stream water with metals concentrations in excess of metals standards does not cause toxic effects on sensitive aquatic organisms. Therefore, additional work is needed to determine the actual effect of metals concentrations on aquatic life in the Buffalo Creek watershed.

Bacteria

The standard for fecal coliform bacteria was not met in one Tallapoosa River mainstem segment, one Little Tallapoosa River mainstem segment and three tributary segments. These were attributed to a combination of urban runoff, septic systems, sanitary sewer overflows, rural nonpoint sources and animal wastes. This region has a high concentration of poultry operations and spreading of poultry waste on fields may be a potential source.

Erosion and Sedimentation

The water use classification of fishing is potentially threatened in many waterbodies by erosion and loading of sediment, which can alter stream morphology, impact habitat, and reduce water clarity. Potential sources include urban runoff and development (particularly construction), unpaved rural roads, forestry practices, and agriculture.

Fish Tissue Quality

Guidelines for eating fish from the Tallapoosa River basin are listed in the following tables. The data shown in these tables are the new guidance which was published in the 1998-99 Georgia Sport Fishing Regulations and *1998 Guidelines for Eating Fish from Georgia Waters* booklet. This guidance is based on the EPA risk-based management approach. The guidance is revised each year if new data collected warrant a change. No fish consumption guidelines are currently in effect for the Tallapoosa basin.

Fish Consumption Guidelines–Little Tallapoosa River

Species	Site Tested	Recommendation	Chemical
Largemouth Bass	U.S. Hwy 27	No Restrictions	
Black Crappie	U.S. Hwy 27	No Restrictions	
Brown Bullhead	U.S. Hwy 27	No Restrictions	

Fish Consumption Guidelines–Tallapoosa River

Species	Site Tested	Recommendation	Chemicals
Blacktail Redhorse	U.S. Hwy 27	No Restrictions	
Bluegill Sunfish	U.S. Hwy 27	No Restrictions	

5.2.5 Assessment of Fish and Wildlife Resources

Detailed assessments of fish and wildlife resources in the Tallapoosa River basin were not available at the time of compilation of the basin plan. However, rough, basin-scale assessments of fish and wildlife resources have been developed as part of the RiverCare 2000 Georgia Rivers Assessment (EPD, 1998). These results are summarized below.

Ecologically Important Fish Resources

Georgia's fishery resources depend upon healthy streams and are part of a diverse community of game and nongame species. These communities by definition include vertebrates like fishes and invertebrates like mussels and aquatic insects. A complete community with all species that naturally occurred in a particular river system is irreplaceable. Only a few species can be propagated and restocked into nature. The life found in a Georgia river depends absolutely on the integrity of aquatic habitat, which in turn directly reflects the conditions within the river's entire upstream watersheds. Healthy aquatic ecosystems can provide sustainable commercial and recreational fisheries which are valuable in their own right. The secondary effects often associated with the pursuit of these fisheries adds even more value to Georgia's local economies.

The Georgia Rivers Assessment work group evaluated river segments and associated tributaries according to the composition of fish and mussel species, the quality of habitat, and the characteristics of the particular fishery. The assessment considered chiefly those river corridors lying downstream of the point that the rivers attained an average annual discharge of 400 cfs. However, portions of ecologically-valuable rivers that might have a smaller average annual flow than 400 cfs were also evaluated, including the Tallapoosa River.

The work group established three value classes to rank river segments:

Superior	Non-regulated stream, near wilderness, not immediately influenced by large municipalities, may contain important faunal assemblages
Outstanding	Non-regulated stream with important faunal assemblages or important habitats
Significant	Can include regulated stream reaches with important faunal assemblages or important habitats.

Within the Tallapoosa River basin, 40 river miles were evaluated and rated Superior.

The Tallapoosa River also provides a high-quality, although under-utilized fishery for spotted bass and largemouth bass.

The major threats to ecologically important fish resources come from nonpoint source pollution and the effects of other human activities in the environment. Clearing vegetation, disturbing earth without adequately controlling the movement of sediment, increasing impervious surface, and related activities in a watershed can alter water quality and patterns of stream discharge. Altering river channels, by dredging or by removing snags that furnish many prey organisms for fish, also reduces the quality and quantity of fish habitat. These activities lower the value of streams for fish populations.

Another significant threat to Georgia's fish species is the introduction of exotic (non-native) aquatic species. Many introduced species, such as flathead catfish, compete with native fish for food and cover, take them as food, or parasitize them. If the new species are so successful that they reduce or eliminate the native population, they may significantly reduce the river's fishery biodiversity as well.

Wildlife Resources

Wildlife enriches humans aesthetically and spiritually, can serve as an indicator of environmental health, provides food and pollination services, and may be a source of pharmaceutical chemicals. Predators, such as hawks and foxes, keep in check populations of mice, rats, and other animals that are considered agricultural pests.

Wildlife also provides recreation to the many people who enjoy watching wildlife or hunting. According to recent surveys, 82 percent of Georgians actively observe wildlife or hunt. These activities generate economic activity from the sale of hunting licenses; of equipment and supplies used to identify, hunt, feed, and watch wildlife; and of services such as food, lodging, outdoor guides, and the maintenance and repair of equipment used in wildlife-oriented recreation.

The Georgia Rivers Assessment Wildlife Resources Work Group evaluated wildlife habitat quality, which it defined to include the expected or observed diversity of wildlife species within the river corridor, and the general condition of terrestrial and wetland habitats within the river corridor. The area under consideration included the stream channel and adjoining lands within 3.1 miles of the riverbank. The work group defined high-quality wildlife resource areas as those that provide habitat for a high diversity of wildlife species. These areas may include habitat that has declined significantly or is rare, or that supports species of special conservation concern. The assessment was limited to perennial streams downstream of the point at which the stream reaches an average annual discharge of 400 cfs or greater.

The evaluation criteria placed equal emphasis on four measures of wildlife resource quality, each of which contributed a maximum of 25 points to a river segment's final score:

1. Diversity of species and natural habitats in the river corridor
2. Habitat value for species of special concern
3. Percentage of river corridor in natural vegetation
4. Habitat fragmentation in the river corridor

Segments were rated as Superior (80 to 100 points), Outstanding (61 to 79 points), Significant (41 to 60 points), and Other (less than 41 points). Within the Tallapoosa River Basin 44 miles of river corridor were rated as Significant. No segments were rated as Superior or Outstanding.

The major threats to wildlife resources are a variety of land-use changes, including residential, industrial, silvicultural, and agricultural development. The effects on wildlife resources vary, both quantitatively and qualitatively, depending on the types of land use in a region, the types of natural habitats present, and the amount of development. Changes to native wildlife populations resulting from the conversion of natural forest habitat to short-rotation silvicultural stands are perhaps less obvious than those resulting from conversion to intensive agricultural or industrial use, but are nonetheless significant. Overall, the trends for wildlife habitat quality in Georgia's river corridors include continued fragmentation of natural habitats, loss of forestred riparian buffers, and increasing prevalence of disturbed and early-successional plant and animal communities.

References

Beisser, G.S. 1990. The Inventory and Distribution of Fish in the Vicinity of the Proposed West Georgia Regional Reservoir, Interim Report. Federal Aid in Fish Restoration Act Project F-36, Georgia. Georgia Department of Natural Resources, Game and Fish Division, Atlanta, Georgia.

EPD. 1998. Georgia Rivers: An Initial Assessment. Environmental Protection Division, Georgia Department of Natural Resources, Atlanta, Georgia.

Freeman, B.J. 1990? Report on Fishes of the Tallapoosa River Drainage System in Georgia. Museum of Natural History, University of Georgia, Athens, Georgia.

Georgia DNR. 1998. Water Quality in Georgia, 1996-1997. Georgia Department of Natural Resources, Atlanta, Georgia.

Reed, M.S. 1989. A Comparison of Aquatic Communities in Regulated and Natural Reaches of the Upper Tallapoosa River. Alabama Cooperative Fish and Wildlife Research Unit, Department of Fisheries and Allied Aquacultures, Auburn University, Alabama.